

REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

Claims 44-49 have been canceled in favor of new claims 50-57. Support for the subject matter of the new claims is provided in Figs. 3B and 14 and the specification on page 7, lines 2-7, page 10, line 21, through page 11, line 1, and page 14, lines 1-12. New claims 50-57 have been drafted to avoid the issues underlying the section 112, first and second paragraph, rejections of claims 44 and 46-48, as further discussed below.

The Office Action proposes that the original application does not support the feature recited in claims 44 and 46-48 of transmitting user data and communication control information in a transmission period that is different from that of a known signal used for channel estimation (see Office Action section 2, second paragraph). The Applicant respectfully disagrees.

The original specification describes an extraction section that extracts a known signal from a received signal during a known symbol interval and extracts a data signal during a data symbol interval (specification page 10, line 21, through page 11, line 1). Additionally, the specification states that the communication control information and user data are simultaneously transmitted on different OFDM carriers (page 3,

second paragraph) and that increasing the number of OFDM subcarriers used to communicate the communication control information decreases the number of OFDM subcarriers that can communicate the user data (page 14, first paragraph). Accordingly, it is submitted that the specification does provide support for the claimed feature of simultaneously transmitting user data and communication control information in a transmission period different from that used to transmit a known signal used for channel estimation. Therefore, it is submitted that withdrawal of the section 112 first paragraph rejections is warranted.

Claims 44-49 were rejected, under 35 USC §102(e), as being anticipated by Pollack et al. (US 6,192,026). To the extent these rejections may be deemed applicable to new claims 50-57, the Applicant respectfully traverses, for at least the following reasons.

Pollack fails to disclose the feature recited in independent claim 50 of a transmission apparatus that allocates the same communication control information to each of specific subcarriers of an OFDM signal and transmits the OFDM signal. With the claimed invention, for example, the same communication control information, A, is assigned to both subcarrier 1 and subcarrier 2 of an OFDM signal for transmission at the same time.

The Applicant argued in the Response filed July 5, 2005, that Pollack discloses assigning mutually exclusive (i.e., different) communication control information $T_1, T_2, \dots T_5$ to each of five different subcarriers communicated simultaneously by different data communication devices (DCDs). In reply to Applicant's argument, the Advisory Action, dated August 22, 2005, counters that Pollack discloses five DCDs that each simultaneously communicate using a different request access (RA) channel (see Advisory Action continuation sheet, lines 8-9) (emphasis added). Continuing, the Advisory Action proposes that each RA channel contains the same control information in that each channel is divided into three subfields that contain the DCD identification, burst number information, and bit error correction information transmitted by the associated DCD (lines 9-11).

In summary, the Advisory Action states that Pollack discloses five communication devices (i.e., DCDs) that each communicate identical information in distinct channels during the same transmission period. The Office Action similarly notes that each RA (i.e., channel) is communicated by a different communication device (see Office Action page 5, lines 1-3).

Accordingly, as discussed in Applicant's Response filed July 5, 2005 and fully acknowledged in both the Advisory Action and

the present Office Action, Pollack discloses that as many as five communication devices may simultaneously communicate on distinct channels. However, the Applicant claims a single transmission apparatus that simultaneously communicates identical information on distinct channels (i.e., OFDM subcarriers). Pollack does not disclose a single transmission apparatus that can simultaneously communicate identical information on distinct channels, and the Office Action does not propose otherwise.

Accordingly, the Applicant submits that Pollack does not identically disclose the subject matter defined by claim 50 and, thereby, cannot anticipate this subject matter. Independent claims 54, 56, and 57 similarly recite the above-mentioned feature distinguishing apparatus claim 50 from Pollack, although claims 56 and 57 do so with respect to methods. Therefore, allowance of claims 50, 54, 56, and 57 and all claims dependent therefrom is warranted.

Additionally, the independent claims recite that the user data and communication control information communicated in the subcarriers is communicated in a different transmission period than the information used for channel estimation. By contrast to the claimed feature, Pollack discloses the following with regard to Fig. 7.

The tones associated with each DCD's RA channel 602 are made up of data tones (D_i) and training tones (T_i), where i denotes the RA channel number (col. 9, lines 10-12). The i^{th} RA channel uses tones $n=i+8k$, $k=0,1 \dots 31$, for training (col. 9, lines 20-21). Using the i^{th} set of training tones T_i , the channel response corresponding to the i^{th} RA channel is estimated separately (col. 9, lines 33-36). The channel response estimate for the i^{th} channel is applied to the set of RA channel data tones D_i to recover the data bits that were sent on the i^{th} RA channel (col. 9, lines 36-38).

In summary, Pollack discloses that the information used for channel estimation (i.e., training tones T_i) is transmitted in the same transmission period as the user data (i.e., data tones D_i). The Advisory Action proposes that Pollack discloses communicating communication control information in the RA channel, which contains the training and data tones (see Advisory Action continuation sheet, lines 5-11). In accordance with Pollack's disclosure and the Advisory Action's proposal, it necessarily follows that Pollack cannot disclose the feature recited in claims 50, 64, 56, and 57 of communicating user data and communication control information in a different transmission period than the information used for channel estimation.

Accordingly, the Applicant submits that Pollack does not anticipate the subject matter of claims 50, 54, 56, and 57, and allowance of claims 50-57 is warranted for this independent reason.

Dependent claims 51, 53, and 55 recite that one of the specific subcarriers to which the same communication control information is allocated is a DC subcarrier. The Office Action proposes that Pollack discloses this feature through the disclosure of RA burst tones having zero energy (see Office Action page 6, second paragraph).

However, a subcarrier must necessarily have energy to exist. A zero-energy subcarrier is a non-existent subcarrier. Thus, per force, it necessarily follows that Pollack does not disclose a DC subcarrier.

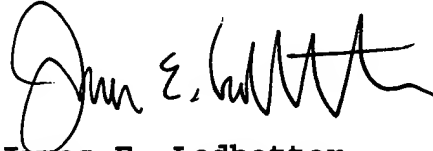
Accordingly, Pollack does not anticipate the subject matter defined by dependent claims 51, 53, and 55. Therefore, allowance of claims 51, 53, and 55 is warranted for this independent reason.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone

the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "James E. Ledbetter". The signature is stylized with a large initial "J" and a series of loops and strokes for the rest of the name.

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JEL/DWW/att

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